Meeting Minutes
Surface Water Quality Standards Advisory Workgroup Meeting
May 25, 2012

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Location: Building F, Second Floor, Room 2210

Time: 9:00 am – 12:00 pm

9:00 a.m. Welcome and Workgroup Introductions, presented by Jill Csekitz

- General welcome and introduction
- Call to order
- Introduction of Water Quality Standards Group staff and workgroup members

Laurie Eng Fisher, Jason Godeaux, Joe Martin, and Debbie Miller

- Adressed facilities, general safety information
- EPA has not sent any new action letters regarding the 2010 Standards revision since our last workgroup meeting in March
- Reminded workgroup participants that all items discussed during workgroup meetings do not represent proposals – items are presented to the group for discussion and input only
- Timeline 2013 WQ Standards Revisions
  - Preliminary comments received (July, 2011)
  - Advisory Workgroups (March, May, July 2012)
  - IP Revisions running concurrently with the WQ standards revisions
  - Proposed (April, 2013)
  - 45-day public comment period
  - Public hearing (June, 2013)
  - Comment period ended (June, 2013)
  - Adoption Agenda (October, 2013)

9:10 a.m. Draft Nutrient Criteria Development Plan, presented by Laurie Eng-Fisher

Handouts: DRAFT -Nutrient Criteria Development Plan – Available on webpage

General Discussion

A draft of the updated Draft Nutrient Criteria Development Plan is available on the Nutrient Criteria Development Advisory Workgroup (NCDAWG) webpage. The TCEQ decided to update the plan not only as a result of the Environmental Protection Agency (EPA) letter sent Dec. 20, 2011 from Jane Watson, Region 6 but also because the plan was last updated in 2006. Updates are needed to reflect the current information and plans for upcoming nutrient criteria development.

Each section of the plan has been updated. Major updates include rewrites to reflect the adopted 2010 reservoir criteria, current studies to aid in criteria development, plans and methodology, data limitations, and specific plans by water body type. The appendices have also been updated and include references to EPA relevant guidance, types of data for criteria development, completed milestones, the upcoming schedule, and the timeline for revising standards. Flexibility has been retained in the plan and schedule to allow incorporation of information developed by projects still underway which will aid in nutrient criteria development.

Please provide comments on the draft plan by June 22, 2012. These comments can be sent to standards via email, standards@tceq.texas.gov. The TCEQ will not have time to respond to these comments before our next workgroup meeting; however, we will track the changes and discuss them at the next workgroup meeting tentatively scheduled for July, 2012. The desired progression is a final version after the NCDAWG meeting tentatively scheduled for fall 2012. You can contact Laurie Eng Fisher with questions directly at 512-239-1713, and information regarding the NCDAWG is available on the webpage.

General Discussion

QUESTION: Does the workgroup document (draft nutrient criteria development plan) have today's date?

LAURIE ENG-FISHER: yes

QUESTION: You referred to the draft plan as a 'heavy duty document.' What do you mean by that? Is it still just a plan outlining potential methodologies and criteria with flexibility?

LAURIE ENG-FISHER: Yes that is correct; it is considered heavy duty because it > 20 pages long. The document roughly outlines the plan and what general information we are considering. More information exists nationally now than in 2006 about methodologies for nutrient criteria development, and the TCEQ has a lot more studies to consider. There is a lot of flexibility in the upcoming schedule. It is not to be considered static and will be updated as needed, but it gives EPA and the public an idea about our plan for nutrient criteria development.

QUESTION: At last session, there was a discussion on nutrients and desirability of a watershed approach. The EPA representative was supportive of that approach. Was that considered? It is not in the draft.

LAURIE ENG-FISHER: We are trying to consider all aspects that we can when working on nutrient criteria. In the statistical project we are currently working on, watershed land use and flow are taken into account in the analysis.

COMMENT: If it is done holistically (such as with a watershed approach), then it would be a different procedure then what you are currently considering.

LAURIE ENG-FISHER: Many of the ideas you are talking about are outlined in the EPA working partnership memo - where they are looking at watersheds and identifying those that need reductions. The development of nutrient criteria and nutrient reduction strategies can exist at the same time.

COMMENT: You should be looking at the entire watershed and changes that have occurred, looking at it holistically instead of looking at streams first and then the watershed. The nexus between water bodies should be considered, and you should avoid a situation where you have conflicting sets of criteria.

LAURIE ENG-FISHER: The TCEQ is considering the watershed and potential conflicts. Criteria are not planned to be stand alone numbers; instead we are planning to incorporate a weight of evidence approach where multiple parameters are considered. That is why we have implementation/assessment procedures that interpret the criteria for permitting and assessment.

9:30 a.m. Changes to Numeric Criteria in Table 2 (Human Health), presented by Debbie Miller

Handouts: Table 2 – Human Health Protection

Changes to IRIS Inputs

During revision cycles, staff typically checks EPA's Integrated Risk Information System (located on EPA's website) to see if any of the human health assessment values, such as reference doses and/or cancer potency factors, have been updated since the last revision. Any changes to these factors can make the criteria either less or more stringent. An excel spreadsheet showing all human health calculations is available on the workgroup webpage.

- The following noncarcinogens had updated reference doses: nitrobenzene and thallium.
- The following carcinogens had updated cancer potency factors: benzo(a)anthracene, carbon tetrachloride, dichloromethane, hexachloroethane, pentachlorophenol, tetrachloroethylene, trichloroethylene
- The following had adjustments to the animal body weight used to calculate the equivalent human dose which could cause adverse health effects: bis(2-chloroethyl)ether, 1,1,2,2-tetrachloroethane

These changes resulted in an almost even split between making criteria more versus less stringent.

Changes to BCFs

Bioconcentration factors are used to calculate criteria for both carcinogens and noncarcinogens. Many of the updated BCFs resulted in less stringent criteria. The following method was used to determine BCF updates for the criteria in Table 2.

- Priority was given to BCFs used in national criteria. If EPA has criteria for a chemical, the same BCF is used to calculate criteria in Table 2.
- No national criteria? Use EPA's Ecotox database. This is located online.
  - Native species given preference over non-native species
  - If several results are available for the same species, use geomean of BCF data
- Not in Ecotox? Use EPA's QSAR Toxicity Estimation Software Tool (T.E.S.T.) - version 4.0 available on EPA's website.
  - If chemical present in test set, use that value
  - If chemical not present in test set, consensus model result used
- What if T.E.S.T. can't/won't model or model relationships are poor?
  - Use the log P to calculate the BCF

Table 1 – Numeric Criteria for the Protection of Aquatic Life

No changes are currently planned to any of the criteria in Table 1.

General Discussion

QUESTION: When using data on BCFs, is there a focus on fish?

DEBBIE MILLER: yes

QUESTION: is the size of the fish considered? Larger fish would seem to be more appropriate.

DEBBIE MILLER: Yes

QUESTION: You said the consensus model used the average of all model results. Wouldn't a geomean by better?

DEBBIE MILLER: the consensus model gives the average (not geomean) of all the model results; most models give answers that are very close to one another, so it is unlikely a single value will skew the average.

QUESTION: Does the consensus result give you all the individual model results so this can be verified (that the average and not geomean is appropriate)?

DEBBIE MILLER: Yes, the consensus results file does show the individual values for each model result.

QUESTION: Are there issues with the criteria getting less stringent?

DEBBIE MILLER: No, numeric criteria are based on current updated scientifically defendable process. These are the same sources EPA uses to develop and update national criteria.

QUESTION: Any backsliding concerns?

DEBBIE MILLER: No, because this is new scientifically defensible information.

QUESTION: Is this material available online, specifically the BCF information you had on the slide?

DEBBIE MILLER: Yes. The BCF information is shown on the third tab of the excel spreadsheet on the workgroup website.

QUESTION: Do you have the formulas of the compounds used in fracking?

DEBBIE MILLER: No. We don't know what they are using.

9:50 a.m. Site-Specific Criteria (pH, TDS, dissolved oxygen) and Segment Boundary Changes, presented by Jason Godeaux

Handouts: Site Specific Standards Revisions

Review of possible site-specific changes to the WQS.

- 7 changes based on UAAs and RWAs
- 4 changes to dissolved solids criteria
- 3 changes to pH criteria
- 6 description changes in Appendix C
- 4 description changes in Appendix D

General Discussion

QUESTION: Regarding possible TDS changes to Lake Corpus Christi, how might that cause changes to the Nueces River when releases are made?

JASON GODEAUX: We looked at the Nueces/Frio River segment during the 2010 revision and modified the dissolved solids criteria. We also looked for historical trends in the data for Lake Corpus Christi using a regression analysis. We did not see a significant trend in the data so the change better describes the conditions in the lake.

QUESTION: Would you suggest any modifications in the process of how TDS criteria are calculated/re-evaluated?

JASON GODEAUX: We are trying to set long term historical numbers and not include new changes. Numbers are based on full historical record and based on mean.

QUESTION: How do you currently evaluate dissolved solids criteria and how do you deal with trends and changes because of changes in use from water trading, etc. Is this considered when re-evaluating TDS criteria?

JASON GODEAUX: Currently we look at the full historical dataset for a segment and look for significant trends in the data. If there are no trends, we use a 95% prediction interval assuming 10 samples to develop a criterion. We have looked at several situations where either changes in

makeup water due to new sources, or water transfers has changed what a discharger's effluent looks like. We have evaluated these on a case by case approach, but as far as an across the board way of dealing with increasing dissolved solids, we do not have an approach at this time.

QUESTION: Regarding the Houston Ship Channel, on the table on your slide, the segment is labeled 1005… is that an error?

JASON GODEAUX: It is a typo, segment may be 1006 or 7

QUESTION: What led to the decision to expand segment 1014?

JASON GODEAUX: We received a comment from EPA. They indicated that the study they approved for the 2010 revision had the study boundary that is listed here and that we did not extend it that far in the 2010 revision. So it's really just a correction.

10:10 a.m. Implementation Procedures Update (WET and pH), presented by Brittany Lee and David Galindo

Handouts: EPA's May 2012 comment letter regarding pH limits in TPDES permits; pH Example A; pH Example B; TCEQ's Proposal to Evaluate pH Limit Compliance with TSWQS

WET Testing: Proposal to change the reporting endpoint – Brittany Lee

Current WET Test Reporting Endpoints

- Chronic/48-hour acute tests: NOEC (No Observable Effect Concentration) and LOEC (Lowest Observable Effect Conc.)
- 24-hour acute tests: LC50 (Lethal Concentration, 50%).
- Only the chronic/48-hour acute testing results are being proposed for a change in the reporting endpoint.

Hypothesis Testing

Instead of every EPA region doing things differently, the guidance's ultimate goal is for every Region and every State to run the same program.

NPDES "regulatory compliance" means compliance with 40 CFR 122.44(d), specifically in regard to Reasonable Potential (RP) determinations. In the past, EPA Region 6 did not perform this analysis on their NPDES permits that were issued prior to Texas receiving delegation.

"Existing guidance" means to use the statistical methodology of the non-promulgated (i.e., guidance, not rule) Technical Support Document.

EPA Region 6 WET policies followed shortly after, and include sublethal RP determination and WET limits.

- NOECs and LOECs are derived as part of series of dilutions, which include the "critical dilution" (the percent of effluent at the edge of the mixing zone).

- The highest of those dilutions which is not statistically significantly different from the control is the NOEC.
- Assumes either:
  - A non-continuous (threshold) model of the dose-response (DR) relationship, or
  - A continuous dose-response relationship.
- Problematic in results with flat DR curves (which aren't really curves at all) and a statistical effect at all dilutions.

Point Estimate Testing

Section 9.1-9.3 of EPA's *The Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, fourth edition, October 2002, addresses tests which may be used by states. These include:

- IC25 – a point estimate of the effluent dilution at which a 25 percent reduction in reproduction or growth of the test organism is demonstrated
- EC25 – a point estimate of the effluent dilution at which a 25 percent reduction in survival of the test organism is demonstrated
- The promulgated EPA method manuals allow for the use of point estimate techniques as an alternative to hypothesis testing.

A study backed by the Texas Whole Effluent Toxicity Coalition was received by the TCEQ in September of 2011. In this study, three entities tested using IC25 from January 2006 through October of 2010. These entities found that there were some tests which failed the NOEC but passed the IC25, while other tests failed both the NOEC and the IC25. However, there were no examples of tests that passed the NOEC but failed the IC25.

- Instead of reporting NOECs and LOECs, permittees would report the IC25 (inhibition control, 25% reduction), which is comparable to the NOEC.
- Has the advantage of providing a point estimate of the toxicant concentration causing a given amount of adverse (inhibiting) effect, precision of which can be assessed :
  - Within tests by calculation of 95% confidence intervals (CIs)
  - Across tests by standard deviations and coefficient of variations.

Using the IC25 method helps to eliminate false positives based on water flea reproduction, especially those due to slight TDS elevations. Colorado currently uses both the IC25 and the NOEC, but EPA would prefer Texas choose one or the other – not both. Most labs currently have the software to report the IC25, and at times labs use the IC25 when a client has issues identifying a pass or fail based on the NOEC.

- IC25 supported by many in the regulated community.
- Change to permit language, not IPs.
- Would still include a dilution series based on the calculated critical dilution.

General Discussion

QUESTION: When will these go into effect (using IC25)?

BRITTANY LEE: concurrent with next IP revision

DAVID GALINDO: Staff would like your input on the proposed change.

QUESTION: Have these been discussed with Region 6

DAVID GALINDO: Not yet; we wanted to do like Colorado who uses both IC25 and NOEC. When one fails, it invalidates the test. We had previously proposed this strategy to EPA, but they wanted one or the other; not both.

COMMENT: Other states have already been giving NOEC and IC25; or using just IC25

COMMENT: IC25 is an easy sale to permittees. Can it be sold to Region 6? But shouldn't a median approach in conjunction with IC25, which will allow permittee to retest in the same quarter, be better? I think IC25 is not aiming high enough.

DAVID GALINDO: Staff is working on median approach, but not enough info to pursue at this time.

TCEQ pH Criteria and EPA permit objections – David Galindo

EPA's national guidance criterion for pH in fresh water is a range of 6.5 to 9.0 standard units based upon the 1986 EPA "Gold Book" compilation of criteria. As with other long-standing national criteria, TCEQ has adjusted the pH range where appropriate using local monitoring data. In the 2010 TSWQS revisions, the criteria for Caddo Lake (Segment 0401) was "re-adjusted" from a pH range of 6.0 to 8.5 to 5.5 to 9.0, for example. This practice is consistent with §131.11(b)(1) which states that in establishing numeric criteria, states may adopt modified criteria based on site-specific conditions.

Current TCEQ practice is to set pH limits of 6.0 to 9.0 based on federal secondary treatment standards for wastewater treatment facilities. These technology-based effluent limitations have been consistently applied within municipal wastewater discharge permits. Technology-based pH limitations for industrial dischargers are applied based upon the applicable federal Effluent Limitation Guideline (ELGs). In the absence of promulgated ELGs for a particular industrial/manufacturing process, pH effluent limits of 6.0 to 9.0 have typically been applied to industrial wastewater discharges based on best professional judgment. TCEQ submits that this current practice is a more conservative approach than allowing consideration of a mixing zone. In the absence of technology-based guidelines, a mixing zone approach for pH may authorize the discharge of pH effluent levels outside of the 6.0 to 9.0 range at the point of discharge.

TCEQ proposes the following evaluation procedure to clarify that permitted pH levels are protective of varying segment criteria:

- TPDES Minor Domestic and General Permits:
  - Permits for EPA designated minor facilities (< 1.0 MGD flow) and General Permits will require end-of-pipe compliance with technology-based limits of 6.0 to 9.0.
  - This assures instream compliance with TSWQS criterion due to the relatively smaller discharge volumes authorized by these authorizations.

    - The same approach has been historically applied within EPA issued NPDES general permits where technology-based pH limits were established to be protective of water quality criteria.
- TPDES Major Domestic and Industrial Permits
    - Texas standards allow consideration of the mixing of effluent and receiving water when conducting reasonable potential analysis and calculating water quality-based limits. Segment specific criteria for pH do not have to be met within the mixing zone (MZ). Using a MZ approach, the discharge is required to meet the water quality standard for pH at the edge of the chronic mixing zone.
    - TCEQ proposes to conduct an evaluation for pH as outlined within Attachment A of the handout entitled "TCEQ Implementation of Texas Surface Water Quality Standards (30 TAC §307) pH Criteria". For freshwater, this analysis will generally follow the procedure in EPA's DESCON program (*Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling*, USEPA Office of Water, Washington D.C., 1988). For saltwater, this analysis will generally follow the procedure for calculation of pH of a mixture in seawater based on the CO2SYS program (Lewis and Wallace, 1998, http://cdiac.esd.ornl.gov/oceans/co2rprt.html).
    - If the evaluation determines that a discharge within the 6.0 to 9.0 range exceeds the applicable TSWQS pH criteria at the edge of the mixing zone, the draft permit will include the applicable TSWQS segment pH criteria range as the end-of-pipe permit limitation.
    - A site-specific pH mixing zone and/or alternate mixing zone model may be proposed by an applicant and considered on a case-by-case basis. These analyses may include effluent percentages from the Critical Conditions memorandum or site specific mixing zone modeling for the determination of effluent percentages where appropriate. If approved by TCEQ, the dimensions of the site specific pH mixing zone will be specified within the TPDES permit and the Fact Sheet will include the justification for the pH mixing zone.
- Discharges to Unclassified Waters
    - All discharges to intermittent streams will meet the technology based limitation of 6.0 to 9.0 to be protective of corresponding minimal aquatic life uses within the unclassified water body.
    - All discharges to intermittent streams with perennial pools will meet the technology based limitation of 6.0 to 9.0 to be protective of corresponding limited aquatic life uses within the unclassified water body.

TCEQ will continue to restrict excursions of continuously monitored pH in accordance with the requirements of 40 CFR Part 401.17.

General Discussion

QUESTION: Does EPA have site specific mixing zone considerations for discharges?

DAVID GALINDO: Staff could evaluate it and possibly incorporate this into permits.

QUESTION: I've noticed some permittees with the 6.5 instead of 6.0 for the bottom end of the pH range?

DAVID GALINDO: Some permits are having 6.5 and it is hard to change. It could be demonstrated on a site-specific basis that going back to the technology-based pH range is appropriate.

QUESTION: Maybe staff could take another look at pH standards for intermittent streams?

JIM DAVENPORT: Currently we have flexibility in standards. pH ranges are given for segments, but not to unclassified water bodies; however, we may need some process more specifically laid out as to how segment criteria are applied to unclassified water bodies.

10:40 a.m. Site-Specific Criteria (Contact Recreation), presented by Joe Martin

Handouts: Brazos River Above Possum Kingdom Lake (1208) Recreational Use Attainability Analysis Summary and Recommendation; Brushy Creek (1244) Recreational Use Attainability Analysis Summary and Recommendation; Bullhead Bayou (1245C) and Unnamed Tributary of Bullhead Bayou (1245D) Recreational Use Attainability Analysis Summary and Recommendation; East Yegua Creek (1212B) Recreational Use Attainability Analysis Summary and Recommendation; Lower Cibolo Creek (1902) Recreational Use Attainability Analysis Summary and Recommendation; Navasota River Above Lake Mexia (1210A) Recreational Use Attainability Analysis Summary and Recommendation; Navasota River Below Lake Limestone (1209) Recreational Use Attainability Analysis Summary and Recommendation

The 2010 Texas Surface Water Quality Standards created four tiers of recreational uses. RUAAs have been initiated on 99 water bodies. TCEQ has solicited public input on 67 RUAA reports, thereby finalizing the report(s). Draft recommendations have been made on eight water bodies. Public comment on draft recommendations ends June 25, 2012.

Draft Recommendations:

- Brazos River Above Possum Kingdom - Retain Primary Contact Recreation
- Navasota River Below Lake Limestone- Retain Primary Contact Recreation
- Navasota River Above Lake Mexia- Reclassification to Secondary Contact Recreation 1
- East Yegua Creek- Reclassification to Secondary Contact Recreation 1
- Brushy Creek- Retain Primary Contact Recreation
- Bullhead Bayou- Reclassification to Secondary Contact Recreation 1
- Unnamed Tributary of Bullhead Bayou- Reclassification to Secondary Contact Recreation 1
- Lower Cibolo Creek- Retain Primary Contact Recreation

General Discussion

QUESTION: Regarding the Brazos River Above Possum Kingdom, how long was the survey?

JOE MARTIN: We did three sites approximately every five miles. Contractors visited sites twice and interviewed people over the course of a summer.

QUESTION: What time of the year were surveys taken?

JOE MARTIN: May through September at times that we felt that the most people would be present.

QUESTION: Was there a bias toward day of the week?

JOE MARTIN: Usually weekends were selected; tried to hit holiday weekends.

QUESTION: What type of discharge is going into Segment 1245D (unnamed tributary of Bullhead Bayou)? As far as you know, no discharges?

DEBBIE MILLER: The permit limits for municipalities would not change regarding bacterial limits; they must meet most stringent requirements.

COMMENT: SARA supports the recommendation for Lower Cibolo Creek.

COMMENT: Does biological use count as PCR?

JOE MARTIN: No it does not.

COMMENT: City of San Antonio supports your recommendations.

QUESTION: Looks like for these eight streams, there are changes in unclassified water bodies and no changes in classified water bodies. Will that always be the case?

JOE MARTIN: Depends on the reports; unknown at this time.

JOE MARTIN: There are two RUAA reports out for public comment; comments are due June 18th.

QUESTION: Back to the previous question…bacteria limits on permits do not change even if the standard changes?

DEBBIE MILLER: Not for municipalities. According to TCEQ's rules for permitting, they will have to comply with the most stringent bacterial standard (i.e. the numeric standard associated with primary contact recreation).

11:50 a.m. Next Meeting Date, presented by Jill Csekitz

- Appreciation expressed for attending the meeting and participating.
- Next work group is currently planned for late July.
- Once scheduled, a "save the date" announcement will be sent via the SWQSAWG listserve.